

UNIVERSITY OF AGRICULTURE, ABEOKUTA
 COLLEGE OF NATURAL SCIENCES
 DEPARTMENT OF COMPUTER SCIENCE

HOD

Dr
 AC

2009/10 FIRST SEMESTER UNIVERSITY EXAMINATION

TITLE OF THE COURSE: ORGANIZATION OF PROGRAMMING LANGUAGE

COURSE CODE: CSC411

TIME: 2½ HRS

INSTRUCTION: ATTEMPT ANY **FOUR** QUESTIONS AND USE ANY CHOICE OF PROGRAMMING LANGUAGE SUITABLE FOR THE QUESTIONS. INDICATE COMMENT TO EVERY STATEMENT

Question one

Write a program to generate random number between 0 and 9 for two players, Bello and Bintu at different index in 10 times. The program would calculate highest frequency for the two players and determine the winner based on the number of highest frequencies. Table one illustrates the pattern of the program where Player Bintu is the winner.

Index: 0	1	2	3	4	5	6	7	8	9
Bello: 7	2	0	1	2	4	2	1	0	6
Bintu: 1	0	1	2	1	2	8	1	0	1

Question two

Write a program that will generate randomly four numbers between 1 and 9 that will be stored on stack. A user will generate an index number from 0 to 3 and a random number from 1 to 9. This number will be subtracted from the number stored on stack based on their index number. Computer too will generate an index number from 0 to 3 and a random number from 1 to 9. This number will be subtracted from the number stored on stack based on their index number. The process will continue between the user and computer until all the elements on the stack becomes zeros. The last player either user or computer to set the stack zero becomes the winner.

Question three

Write a class program named "Rectangle" with subclasses of triangle, trapezium and square. The variable of the subclasses of triangle, trapezium and square would inherit the variable of class Rectangle. The object of the class Rectangle would call methods to calculate the area and perimeter of triangle, trapezium and square.

Question four

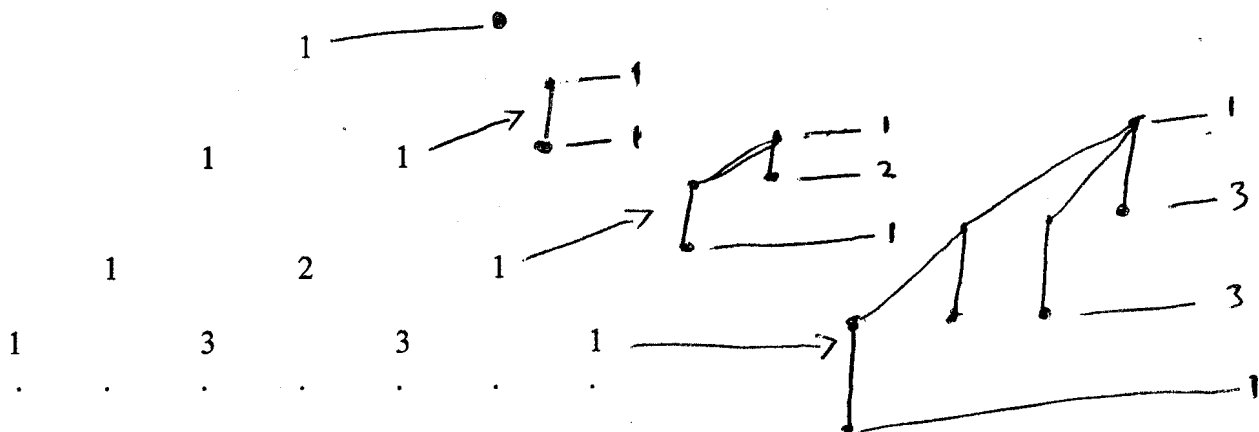
Write a program to read multidimensional array of A[N], B[N] and C[M]. The program will read the values of A[N] and B[N] by subtracting them and put the output in C[M]. The same process for dividing A[N] by B[N] and the result would be assigned into C[M]. The sample of the program would look like this for the subtraction.

TH	H	T	U
—	4	6	3-----A[N]
	2	8	5-----B[N]

/	1	7	8-----C[M]

Question five

Write a program to display Pascal triangle or binominal nodes as illustrate below



Question Six

Study these codes and determine the output of the program in the bracket label a, b, c. You can use computer to generate the labels.

(i)

```

begin
  var x, var y
  x:=1, y:=2
  begin
    var z, var x
    if z then x+y, 1
    if x then x+y, z
    { z = , x = , y= } ----->a
  end
  if y then y, x
  { x = , y= }----->b
end

```

(ii)

```

begin
  var x, var y, var z
  y:=2;
  if x then y, z
  { z = , y = , x = }----->a
  begin
    var y, var z
    if y then y+1, x
    z := y + x;
    { z= , y= , x= }----> b
  end
  if z then x+y, z+1
  { z = , y= , x= }----->c
end

```